

EAR MUFF

FIELD OF THE INVENTION

The present invention relates to the field of head gear designed to cover the user's ears and more particularly to ear muffs, which can be joined to or removed from existing headgear.

BACKGROUND OF THE INVENTION

Ear protection has been used for many years. Commonly, the protection is used both to avoid damage to the ear drum, e.g., sound control, and to avoid discomfort, e.g., temperate control. Ear protection has taken many forms including ear plugs and ear muffs for sound control. Ear muffs and hats have been used for temperature control. The ear muff is perhaps the most common ear protection due to its versatility.

Ear muffs are commonly made where one covering for each ear is joined with a strap that extends across or behind the head. This is suitable where no other form of headgear is being worn that can cause interference with the strap. On occasion other head gear is desired. For instance, the user may be in a location where a hard hat is required equipment.

Ear muffs used in conjunction with hard hats require either a band that is specifically fitted to the hard hat, making the muffs difficult to mass produce, or are secured to the hard hat without a band. This has resulted in several designs where the muffs are bolted to the hard hat. Bolting the muffs to the hard hat, however, have the

drawback of loss of versatility of the muffs. That is, the muffs are permanently joined to one hat and are not useable with any other headgear.

Ear muffs in general are difficult to clean, requiring the user to place the muffs and connector into the washing machine in combination. The muffs position themselves nicely for storage, stacking, but this becomes a drawback in the washing machine, where the stacking precludes washing the unexposed parts. Thus, when the user washes common ear muff designs, the user risks damage to the connector and is not able to fully clean the muffs, typically leaving the parts that will be positioned adjacent the ears in a dirty state.

Ear muffs typically have a hardened skeletal structure supporting a fabric overlay. The hardened structure is forced against the ear to hold the muff in position. This pressure, while maintaining protection where it is needed, introduces the problem of discomfort of mashing of the ear.

What is needed is an ear muff that is suitable for use with all forms of head gear and can be moved from one piece of headgear to another. The muffs should be easily disassembled to allow for washing of the fabric portions separate from the non-fabric portions. The ear muffs should stack for easy storage, yet not stack when being washed. Furthermore, the ear muffs should be designed such that non-fabric portions do not apply pressure to the ears, avoiding the causing of tenderness and irritation.

SUMMARY OF THE INVENTION

This ear muff is provided with a support and a cover. The support has a fastener integral with a hoop and includes mechanism for gripping. The gripping mechanism includes a perimeter defining an aperture with a projection extending into the aperture. The hoop has a rail defining an opening. The hoop is designed to have an expanded position and a compressed position. The compressed position is approximately half the diameter than the expanded diameter. The cover defines an opening and has an insulator disposed within the cover. The opening is sized to receive the hoop in the compressed position and not receive the hoop in the expanded position.

An ear muff includes a support having a fastener integral with a hoop. The support being made of a material having sufficient stiffness and memory such that it does not deform during normal use and having sufficient flexibility and memory that it is selectively repositionable relative to a user while in a use position via bending the support. A cover is disposed about the hoop.

Advantageously, the present invention provides an ear muff, not joined to a second ear muff, allowing for easier storage within a pants pocket.

Also advantageously, the hoop, having a collapsed and expanded position, allows for easy removal of the cover for washing and maintenance of the cover on the hoop when in use, essentially through a locked and unlocked mechanism based upon the position of the hoop.

As yet another advantage, the ear muffs can be joined to existing headgear such as baseball style caps, cowboy hats, hard hats, headbands, bandana's or any other form of headgear on which a sweat band or other type of band may be found.

As still yet another advantage, the support may be bent to move the ear muff closer or further away from the ear.

As another invention, the hoop is sized to fit about the ear, removing hardened parts from being in pressure communication with the ear, while positioning the warming, e.g., fabric, portions of the muff against the ear.

DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view showing the present invention in use;

Figure 2 is a front view showing the present invention mounted to the band in a hat or other headgear;

Figure 3 is a side view of the support of the present invention with lining showing the curved hoop portion;

Figure 4 is a front or back view of the support of the present invention in the expanded state;

Figure 5 is a side view of the support of the present invention with lining showing the curved hoop portion and the support being in a bent position;

Figure 6 is a front or back view of the support of the present invention in the compressed state;

Figure 7 is a side view of the present invention in partial cross section; and

Figure 8 is a side view of the present invention.

DETAILED DESCRIPTION

The ear muff 10 includes a support 20 and a cover 50. The ear muff 10 may be sold or used as a pair with a second ear muff 10, e.g., one for each ear. When used as a pair of ear muffs 10, the ear muffs preferably are not connected to each other, allowing each muff 10 to be store separately or stacked relative to each other. Each component will be discussed in serial fashion.

The support 20 has a fastener 22 integral with a hoop 34. The support 20, if rigid, e.g. substantially non-deformable, may be bent between fifteen and thirty degrees between the fastener 22 and hoop 34, which allows the hoop 34 to be held against the head of the wearer. Flexible supports 20 may be bent by the user as the need arises. That is, the fastener 22 may be formed out of the same piece of material with the hoop 34 perhaps by die cutting or molding. The support 20 has the purpose and effect of supporting the cover 50 and connecting the ear muff 10 to a form of headgear 12, including baseball style caps, cowboy hats, hard hats, headbands, bandana's, etc. The support 20 may be made of a material having sufficient stiffness and memory such that it does not deform during normal use and has sufficient flexibility and memory that it is selectively repositionable relative to a user while in a use position via bending the support. For instance, the support 20 will remain in the straight position shown in Figure 3 during normal use or selectively repositioned, at the behest of the user into the bent position shown in Figure 5 where it will remain during normal use until the user decides to reposition into the straight position. The preferred material is HDPE or ABS Polycarbonate without or without fillers or modifiers.

The fastener 22 may include mechanism for gripping 24. The gripping mechanism 24 may include a perimeter 26 defining an aperture 32 and a projection 28 extending into the aperture 32. In such configuration, the gripping mechanism 24 may secure the ear muff 10 to headgear 12 in much the same manner as a paperclip holds papers together. That is, the projection 28 is sized to be positioned on one side of a band 14 of headgear 12 while the perimeter 26 is positioned on the opposite side of the band 14, trapping the band 14 therebetween. The support 20 generally is trapped between the user's head and the band 14, adding additional strength and support. The projection 28 may have teeth 30 adapted to grip the band 14 of headgear 12. Alternatively, the projection 28 may be coated with a non-slip material adapted to grip a band 14 of headgear 12. This configuration of the fastener 22 is particularly advantageous in that it allows the user to secure the ear muffs 10 in a use position over the ears as shown in Figure 1 and the ear muffs may be inverted to secure the muffs 10 to the headgear 12 upwardly away from the ears of the user in a non-use position. Other fastening mechanisms may be used, although such fastening mechanisms are generally expected to not provide the advantages of that shown and described with respect to the present invention.

The hoop 34 has a rail 36 that defines an opening 38. The hoop 34 has an expanded position as shown in Figure 4 and a compressed position as shown in Figure 6. The compressed position preferably are approximately half the diameter than the diameter of the expanded position, although different relative dimensions are utilitarian. The hoop 34 extends downwardly from the band 14 when in a use position and

upwardly from the band 14 when in a non-use position. The hoop 34 is sufficiently larger than a human ear such that the hoop 34 is adapted to fit about, e.g., encase, a human ear when the ear muff 10 is in a use position. That is, the support 20 does not apply pressure to the ear, which is only in contact with the warming parts of the muff 10, e.g., cover 50.

The cover 50 included an outer cover 52 defining an opening 54 and an insulator 56 disposed therein. The cover 50 may be gathered at the opening 54 with elastic or hook and loop fabric, although such gathering is unnecessary in view of the flexibility of the hoop 34. The opening 54 preferably is sized to receive the hoop 34 in the compressed position (Fig. 6) and not receive the hoop 34 in the expanded position (Fig. 4). That is, the hoop 34 may be compressed and the cover 50 removed therefrom for washing, and placed back into the cover 50 for use. The hoop 34 is repositioned into the expanded position to keep the cover 50 from being inadvertently removed therefrom.

An insulator 56 may be positioned inside the cover 50. Such insulator 56 may include foam padding, quilted fabrics or any other material, or lack thereof that operates to keep the user's ears warm. The insulator 56 can be sized to fit inside the hoop 34 when the hoop 34 is in the expanded position.

Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize changes may be made in form and detail without departing from the spirit and scope of the invention.